Notes on the Baya

Breeding Season 1957

BY

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In the 1957 season observations on the Baya Weaver Bird (*Ploceus philippinus* Linn.) in Poona were continued over a period of about 6½ months, April 18 to the end of October. I was unable to visit the Parbati Hill area daily till the end of May, but thereafter the place was visited every day either in the early morning or the evening. My notes tend to confirm most of the data previously published and also to open up several new ecological problems.

My first visit to the Parbati Hill area this year was on April 18. The area then was dry and sun-scorched and no bayas were about. The arid conditions lasted a couple of weeks more until the farmers started irrigating their 'wadis' from their wells. The runnels that carried this water soon became favourite bathing and drinking places for the bayas of the neighbourhood. A small party of male bayas in non-breeding plumage visited the area. It comprised 5 to 7 birds, but gradually more off-plumaged birds joined this group to form a flock of 50 to 60 individuals. They spent their time hopping about on the ground, gleaning grain and grass seeds. The sex was ascertained by dissection of 9 birds from this flock between 25 April and 2 May, all of which proved to be males. At this stage the birds seemed shy and nervous, promptly taking refuge in near-by trees even if they heard the sudden harsh notes of the Large Grey Babbler or the Rufousbacked Shrike. Later in the season, when the breeding was in full swing, they lost their extreme jitteriness, and once I even saw a cock baya make an assault on a straying Baybacked Shrike.

An interesting fact noticed was the close association of the White-throated Munia (*Lonchura malabarica*) with the bayas even at this pre-nesting stage. A small party of the munias was often seen in company with the baya flock, feeding and flying with it.

Immediately on the onset of the first rains on 28 May the flock, with as yet only a few individuals in partial breeding dress, split up into small parties of 4 to 7 which resorted to the various previous nesting sites in the area and the old nests of the last season, and started singing the characteristic building choruses. Occasionally there

was a fight between two males for the possession of an old nest. Moulting into nuptial plumage became general and accelerated at this period, the first yellow appearing on the forehead and crown, then breast, and lastly on back. Though the flock had broken up into smaller parties the birds still continued to feed together and to roost in a swarm in a dense sugar-cane field about two miles west of the Parbati Hill area. This roost appeared to be exclusively for males and at it cocks not only from this area but also from the surrounding countryside foregathered every evening.

Fresh nest-construction started on June 3 after the remnants of the old nests had all been removed, but work practically stopped after the 'helmet' stage, as apparently no females were physiologically ripe as yet and none made their appearance in the colonies. On July 30, 8 or 10 hen-plumaged birds were observed amongst a large feeding flock of brightly coloured cocks. Two of these brown birds were trapped, and again on dissection proved to be males.

The lull in purposeful activity dragged on until August 4 when the first prospecting female showed herself in the area. During the two-month interval the birds had merely doodled with their unfinished nests, chiefly in the mornings, rarely bringing any fresh strips to add to them. Later in the day they had joined up again to form the large flock. Soon after the advent of the first female in the colony visits of more females rapidly increased. This revitalized the activity of the cocks and building was resumed in earnest, accompanied by the characteristic shivering and fluttering of wings to attract the prospecting hens. Two cocks once chased a visiting female for a distance of nearly half a mile while she zigzagged through the trees and bushes to escape, and was finally lost to sight. On a rough estimate there were at this period about 25 permanent nest colonies in this area, chiefly at the wells dotted about, including the Main or Control Colony at which most of our experimental work was done during this and previous seasons, and the total number of available nests (in 'helmet' stage) and males about 200. The first heavy influx of ready-to-breed females was perhaps slightly in excess of the nests available. They settled down almost simultaneously with the result that the hatching of the initial clutches of eggs was also almost synchronous.

It is worth recording that the 1957 monsoon in the Poona area (except towards the very end) was a perfectly steady and normal one. It was uninterrupted by spells of drought and cloudbursts and squalls that cause serious setbacks and delays in most years, sometimes completely annihilating well-advanced colonies and compelling the birds

to start all over again. Thus the breeding activities which started unusually early (as did also the rains), though delayed by nearly a month and a half owing to the unreadiness of the females to breed, ran smoothly through and were successfully terminated by the end of September. The clutches of the first flush of laying in early August were larger and also resulted in a higher percentage of hatching success.

Table 1 shows the clutch size in 25 nests examined at random during the 1957 season in the Parbati Hill area:

TABLE 1

No. of eggs in clutch	*No. of nests*	*Total eggs*
1	3	3
2	2	4
3	9	27
4	8	32
5	2	10
8	1	8[1]
	25	84

Therefore, average size of clutch 3.3 as against 2.7 last year.

In a nest in colony KC3 *two* eggs were found to have been laid on one and the same day (10 Aug.) presumably by different females, while in two nests of the Control Colony it was observed that a fourth and last egg was added after a gap of 5 and 6 days respectively. The weight of those eggs, 2.2 gm. in each case, was definitely lower than the other eggs of the clutches. These delayed eggs hatched successfully, but with the corresponding delay. The hatchings were found dead the day following emergence, as a result of overcrowding and competition with the older chicks.

Weight of eggs

The average weight of 57 of the above eggs which were fresh was 2.38 gm.; maximum 2.8, minimum 2.1 gm. (cf. last year's 2.24 gm.; maximum 2.7, minimum 1.9 gm.)

As compared with last year's weights of the earlier layings in the Control Colony, this season's result is as follows:

Average weight of 1st egg (in 8 clutches) 2.28 gm.

Average weight of 2nd egg (in above 8 clutches) 2.39 gm.

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[1]This is quite abnormal and was probably the produce of more than one female. EDS.

It will be seen from Table 2 the average clutch size in 1957 was larger than in 1956. As mentioned earlier no fresh eggs were found in Control Colony in October, but the average clutch size in September was definitely higher than in September of the previous year.

TABLE 2

Average Clutch Size

Month	Year	
	1956	1957
August	3.0	3.0
September	2.3	3.2
October	2.6	No eggs being laid.
Mean	2.6	3.1

Incubation Period

The commonest incubation period in the 1957 season was found to be 15 days as against 16 days in 1956. Table 3 gives the details:

TABLE 3

Incubation Period

Period to hatching	*No. of cases observed*
13 days	no record
14 days	8
15 days	10
16 days	2
17 days	1
18 days	no record

Nestling Period

Table 4 shows the period between hatching and leaving the nest. The most common period in the 1957 season was the same as for incubation, viz. 15 days. It was observed that this year all the breeding activities were apparently speeded up.

TABLE 4

Days in nest	*Cases observed*
13	2
14	5
15	6
16	1
17	1

Nesting Success

Eggs

Control Colony in the 1957 season contained 7 males, 9 females, 9 complete and occupied nests, and 4 incomplete ones. However, one of the nests was out of reach for examination and could not be investigated. The total number of eggs in the 8 nests was 26, i.e. 3.2 per nest. Of these, 3 eggs got destroyed owing to rivalry amongst the cocks; two eggs vanished for some unknown reason (? ejected). The remaining 21 eggs all hatched successfully, i.e. 80.7%.

Young

Out of the 21 young, 15 left the nests successfully in due course, i.e. 71.4%—or 57.6% of the total number of eggs laid. Therefore, average success 1.9 chicks per nest as against only 1.00 last year.

Sex Ratio

Dissections confirmed last year's finding that males are somewhat in excess of females in the broods before the young leave the nest. This poses a highly intriguing situation which calls for a detailed study. The data for 1957, collected from random nests in this area, are given in Table 5.

Table 5

Date	Nest No.	Total young	♂	♀	o?
9 Sept.	1	3	2	1	
13 Sept.	2	1	1	—	
13 Sept.	3	2	—	2	
13 Sept.	4	4	3	1	
18 Sept.	5	3	1	1	1
19 Sept.	6	4	2	1	1
		17	9	6	2

Therefore, ratio of males to females was 3:2.

Copulation

On 5 August 1957 at 6.45 p.m. the first copulation of a pair was observed in Control Colony. The act took place on the 'chin strap' of a nest in the 'helmet' stage. Next day the nest was completed, all except the entrance tube. The first egg was laid on 9 August, i.e. on the fourth day after the initial copulation.

For two years successively I had observed copulations of the baya only as above, i.e. on the cross-bar of nests in the 'helmet' stage, but in the 1957 season I recorded one away from a nest. At 9 a.m. (18 August) a female solicited on a branch of a tree adjacent to the colony with shivering wings and partially upraised tail, upon which two cocks from the colony promptly rushed up to her and tried to mount, and one succeeded in copulating with her. This was undoubtedly an instance of promiscuous mating as suggested by Sálim Ali in our earlier paper (*JBNHS* 54: 502—August 1957).

Abnormal Nests

I have been on a special look-out for abnormal nests of the baya in the Poona area since 1953. It is extraordinary to note that during the 1957 season not a single case of nest abnormality was observed. The explanation may well lie in the fact that this breeding season was an unusually short and steady one, unmarred by any setbacks as compared with the past four years. As mentioned earlier, building activities were completely over by the end of September, not a single fresh nest or egg being found in October. The suggestion is that when, due to meteorological interruptions, the birds are obliged to re-start breeding activities late in the season, it becomes imperative for them to speed up their activities. In order to make up for lost time they then tend to take short cuts in building by makeshift additions to a derelict nest still hanging, rather than remove it entirely before commencing a fresh one in its place. Thus apparently are brought about the 'tandem' nests and other abnormalities previously described.

Data from Ringing

In the 1956 season all the adult birds in Control Colony (5 males, 10 females) and 9 nest-young had been ringed with coloured plastic rings in an attempt to determine their degree of faithfulness to the nest site. It is significant that none of these individuals returned to the same colony to breed in 1957. However, one of the marked young (No. 27, since determined to be a female) was discovered breeding in a different colony at a distance of about four furlongs from its birth place. A second bird (No. 14, also determined to be a female), also ringed as a nestling in the same neighbourhood (KC3 Colony), was likewise found breeding in another colony situated some 300 yards from her place of birth. Curiously enough both these young and inexperienced females were breeding in one and the same colony (KC 1) which contained no other completed and occupied nests besides these two.

One male (No. 41), who was used as a decoy for trapping birds in the 1956 season and who had escaped during the experiment, was also observed in a different nest colony (No. 9), but not definitely ascertained to be breeding there. Out of a total of 36 birds colour-ringed in 1956 only the above three birds were re-discovered in the 1957 season, i.e. 8.3%.

Case history of Female No. 27

Hatched out in nest No. 6 (Control Colony) on 6 September 1956. Marked on 14-9-1956 with coloured rings red/white on right leg when nine days old. Left nest on 21 September, i.e. on 15th day. Re-discovered breeding in August 1957 in nest colony KC1 situated about four furlongs NE. of Control Colony where ringed. Laid first egg on 8 August 1957, i.e. when 336 days (about 11 months) old, and three more eggs on successive days. They measured (1) 19.0×15.0, (2) 20.0×14.5, (3) 19.5×15.0, (4) 19.5×14.5 mm. Of these, only one egg hatched in due time. One egg of the clutch was accidentally broken; the other two disappeared during incubation; the young died soon after hatching.

On the first few occasions when I approached the nest for daily inspection of the contents, the incubating female did not leave till I touched the nest although her mate was uttering anxious alarm notes all the while. She apparently did not understand the significance of the agitated calls. But after two days she had learnt the meaning of the male's warning notes and flew out as soon as they were uttered long before the nest was touched, and sometimes even when I was yet at a distance.

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